

gcc aat gat ttt aaa act gga gat aaa ata gct gtg ttc tcc gtc cca 288
Ala Asn Asp Phe Lys Thr Gly Asp Lys Ile Ala Val Phe Ser Val Pro
85 90 95

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ttt gat tgg aac tat tta tca aaa gga aaa gtc aca gca tat acc tat 336
Phe Asp Trp Asn Tyr Leu Ser Lys Gly Lys Val Thr Ala Tyr Thr Tyr
100 105 110

ggt gga ata aca ccc tac caa aaa act tca ata cct aaa aat atc cct 384
Gly Gly Ile Thr Pro Tyr Gln Lys Thr Ser Ile Pro Lys Asn Ile Pro
115 120 125

gtt aat tta tgg att aat gga aag cag atc tct gtt cct tac aac gaa 432
Val Asn Leu Trp Ile Asn Gly Lys Gln Ile Ser Val Pro Tyr Asn Glu
130 135 140

ata tca act aac aaa aca aca gtt aca gct caa gaa att gat cta aag 480
Ile Ser Thr Asn Lys Thr Thr Val Thr Ala Gln Glu Ile Asp Leu Lys
145 150 155 160

gtt aga aaa ttt tta ata gca caa cat caa tta tat tct tct ggt tct 528
Val Arg Lys Phe Leu Ile Ala Gln His Gln Leu Tyr Ser Ser Gly Ser
165 170 175

agc tac aaa agt ggt aga ctg gtt ttt cat aca aat gat aat tca gat 576
Ser Tyr Lys Ser Gly Arg Leu Val Phe His Thr Asn Asp Asn Ser Asp
180 185 190

aaa tat tct ttc gat ctt ttc tat gta gga tat aga gat aaa gaa agt 624
Lys Tyr Ser Phe Asp Leu Phe Tyr Val Gly Tyr Arg Asp Lys Glu Ser
195 200 205

atc ttt aaa gta tac aaa gac aat aaa tct ttc aat ata gat aaa att 672
Ile Phe Lys Val Tyr Lys Asp Asn Lys Ser Phe Asn Ile Asp Lys Ile
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ggg cat tta gat ata gaa att gac tcc taa 702
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<213> Streptococcus pyogenes

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Leu Arg Asn Ile Tyr Ser Thr Ile Val Tyr Glu Tyr Ser Asp Ile Val
35 40 45

Ile Asp Phe Lys Thr Ser His Asn Leu Val Thr Lys Lys Leu Asp Val
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Arg Asp Ala Arg Asp Phe Phe Ile Asn Ser Glu Met Asp Glu Tyr Ala
65 70 75 80

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Tyr	Gly	Ser	Gln	Leu	Ala	Tyr	Ala	Asp	Glu	Asn	Leu	Lys	Asp	Leu	Lys	
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Arg	Ser	Leu	Arg	Phe	Ala	Tyr	Asn	Ile	Thr	Pro	Cys	Asp	Tyr	Glu	Asn	
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gta	gaa	att	gca	ttt	gtt	act	aca	aat	agc	ata	cat	att	aat	act	aaa	192
Val	Glu	Ile	Ala	Phe	Val	Thr	Thr	Asn	Ser	Ile	His	Ile	Asn	Thr	Lys	
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caa aaa aga tcg gaa tgt att ctt tat gtt gat tct att gta tct tta	240
Gln Lys Arg Ser Glu Cys Ile Leu Tyr Val Asp Ser Ile Val Ser Leu	
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ggc att act gat cag ttt ata aaa ggg gat aag gtc gat gtt ttt ggt	288
Gly Ile Thr Asp Gln Phe Ile Lys Gly Asp Lys Val Asp Val Phe Gly	
85 90 95	
ctc cct tat aat ttt tcc cca cct tat gta gat aat att tat ggt ggt	336
Leu Pro Tyr Asn Phe Ser Pro Pro Tyr Val Asp Asn Ile Tyr Gly Gly	
100 105 110	
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Ile Val Lys His Ser Asn Gln Gly Asn Lys Ser Leu Gln Phe Val Gly	
115 120 125	
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Ile Leu Asn Gln Asp Gly Lys Glu Thr Tyr Leu Pro Ser Glu Ala Val	
130 135 140	
cgc ata aaa aag aaa cag ttt act tta cag gaa ttt gat ttt aaa ata	480
Arg Ile Lys Lys Lys Gln Phe Thr Leu Gln Glu Phe Asp Phe Lys Ile	
145 150 155 160	
aga aaa ttt cta atg gaa aaa tac aat atc tat gat tcg gaa tcg cgt	528
Arg Lys Phe Leu Met Glu Lys Tyr Asn Ile Tyr Asp Ser Glu Ser Arg	
165 170 175	
tat aca tcg ggg agc ctt ttc ctt gct act aaa gat agt aaa cat tat	576
Tyr Thr Ser Gly Ser Leu Phe Leu Ala Thr Lys Asp Ser Lys His Tyr	
180 185 190	
gaa gtt gat tta ttt aat aag gat gat aag ctt tta agt cga gac agt	624
Glu Val Asp Leu Phe Asn Lys Asp Asp Lys Leu Leu Ser Arg Asp Ser	
195 200 205	
ttc ttt aaa agg tat aaa gat aat aag att ttt aat agt gaa gaa att	672
Phe Phe Lys Arg Tyr Lys Asp Asn Lys Ile Phe Asn Ser Glu Glu Ile	
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Arg Ser Leu Arg Phe Ala Tyr Asn Ile Thr Pro Cys Asp Tyr Glu Asn
 35 40 45
 Val Glu Ile Ala Phe Val Thr Thr Asn Ser Ile His Ile Asn Thr Lys
 50 55 60
 Gln Lys Arg Ser Glu Cys Ile Leu Tyr Val Asp Ser Ile Val Ser Leu
 65 70 75 80
 Gly Ile Thr Asp Gln Phe Ile Lys Gly Asp Lys Val Asp Val Phe Gly
 85 90 95
 Leu Pro Tyr Asn Phe Ser Pro Pro Tyr Val Asp Asn Ile Tyr Gly Gly
 100 105 110
 Ile Val Lys His Ser Asn Gln Gly Asn Lys Ser Leu Gln Phe Val Gly
 115 120 125
 Ile Leu Asn Gln Asp Gly Lys Glu Thr Tyr Leu Pro Ser Glu Ala Val
 130 135 140
 Arg Ile Lys Lys Lys Gln Phe Thr Leu Gln Glu Phe Asp Phe Lys Ile
 145 150 155 160
 Arg Lys Phe Leu Met Glu Lys Tyr Asn Ile Tyr Asp Ser Glu Ser Arg
 165 170 175
 Tyr Thr Ser Gly Ser Leu Phe Leu Ala Thr Lys Asp Ser Lys His Tyr
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 Glu Val Asp Leu Phe Asn Lys Asp Asp Lys Leu Leu Ser Arg Asp Ser
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 1 5 10 15
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 20 25 30

Asn Ser Tyr Asn Thr Thr Asn Arg His Asn Leu Glu Ser Leu Tyr Lys
 35 40 45

His Asp Ser Asn Leu Ile Glu Ala Asp Ser Ile Lys Asn Ser Pro Asp
 50 55 60

Ile Val Thr Ser His Met Leu Lys Tyr Ser Val Lys Asp Lys Asn Leu
 65 70 75 80

Ser Val Phe Phe Glu Lys Asp Trp Ile Ser Gln Glu Phe Lys Asp Lys
 85 90 95

Glu Val Asp Ile Tyr Ala Leu Ser Ala Gln Glu Val Cys Glu Cys Pro
 100 105 110

Gly Lys Arg Tyr Glu Ala Phe Gly Gly Ile Thr Leu Thr Asn Ser Glu
 115 120 125

Lys Lys Glu Ile Lys Val Pro Val Asn Val Trp Asp Lys Ser Lys Gln
 130 135 140

Gln Pro Pro Met Phe Ile Thr Val Asn Lys Pro Lys Val Thr Ala Gln
 145 150 155 160

Glu Val Asp Ile Lys Val Arg Lys Leu Leu Ile Lys Lys Tyr Asp Ile
 165 170 175

Tyr Asn Asn Arg Glu Gln Lys Tyr Ser Lys Gly Thr Val Thr Leu Asp
 180 185 190

Leu Asn Ser Gly Lys Asp Ile Val Phe Asp Leu Tyr Tyr Phe Gly Asn
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Gly Asp Phe Asn Ser Met Leu Lys Ile Tyr Ser Asn Asn Glu Arg Ile
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gtt Val	aca Thr	cca Pro	tca Ser 20	gta Val	aac Asn	agt Ser	aat Asn	tcg Ser 25	gaa Glu	aat Asn	agt Ser	aaa Lys	att Ile 30	gta Val	ggg Gly	96
aat Asn	tta Leu	cta Leu 35	ata Ile	gat Asp	gga Gly	gtc Val	cag Gln 40	caa Gln	aaa Lys	aca Thr	cta Leu	ata Ile 45	aat Asn	ccc Pro	ata Ile	144
aaa Lys	ata Ile 50	gat Asp	aaa Lys	cct Pro	att Ile	ttt Phe 55	acg Thr	att Ile	caa Gln	gaa Glu	ttt Phe 60	gac Asp	ttc Phe	aaa Lys	atc Ile	192
aga Arg 65	caa Gln	tat Tyr	ctt Leu	atg Met	caa Gln 70	aca Thr	tac Tyr	aaa Lys	att Ile	tat Tyr 75	gat Asp	cct Pro	aat Asn	tct Ser	cca Pro 80	240
tac Tyr	ata Ile	aaa Lys	ggg Gly	caa Gln 85	tta Leu	gaa Glu	att Ile	gcg Ala	atc Ile 90	aat Asn	ggc Gly	aat Asn	aaa Lys	cat His 95	gaa Glu	288
agt Ser	ttt Phe	aac Asn	tta Leu 100	tat Tyr	gat Asp	gca Ala	acc Thr	tca Ser 105	tct Ser	agt Ser	aca Thr	agg Arg	agt Ser 110	gat Asp	att Ile	336
ttt Phe	aaa Lys	aaa Lys 115	tat Tyr	aaa Lys	gac Asp	aat Asn	aag Lys 120	act Thr	ata Ile	aat Asn	atg Met	aaa Lys 125	gat Asp	ttc Phe	agc Ser	384
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<213> Streptococcus pyogenes

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Asn	Leu	Leu 35	Ile	Asp	Gly	Val	Gln 40	Gln	Lys	Thr	Leu	Ile 45	Asn	Pro	Ile
Lys 50	Ile	Asp	Lys	Pro	Ile	Phe 55	Thr	Ile	Gln	Glu	Phe 60	Asp	Phe	Lys	Ile
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Leu	Val	Thr	Lys	Lys	Leu	Asp	Val	Arg	Asp	Ala	Arg	Asp	Phe	Phe	Ile	
		35					40					45				
Asn	Ser	Glu	Met	Asp	Glu	Tyr	Ala	Ala	Asn	Asp	Phe	Lys	Asp	Gly	Asp	
	50					55					60					
Lys	Ile	Ala	Met	Phe	Ser	Val	Pro	Phe	Asp	Trp	Asn	Tyr	Leu	Ser	Glu	
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Gly	Lys	Val	Ile	Ala	Tyr	Thr	Tyr	Gly	Met	Thr	Pro	Tyr	Gln	Glu	Glu	
				85					90					95		
Pro	Met	Ser	Lys	Asn	Ile	Pro	Val	Leu	Trp	Ile	Asn	Arg	Arg	Gln	Ile	
			100					105					110			
Pro	Val	Pro	Tyr	Asn	Gln	Ile	Ser	Thr	Asn	Lys	Thr	Thr	Val	Thr	Ala	
		115					120					125				
Gln	Glu	Ile	Asp	Leu	Lys	Val	Lys	Phe	Leu	Ile	Ser	Gln	His	Gln	Leu	
	130					135					140					
Ser	Ser	Gly	Ser	Ser	Tyr	Lys	Ser	Gly	Lys	Leu	Val	Phe	His	Thr	Asn	
145					150					155					160	
Asp	Asn	Ser	Asp	Lys	Tyr	Ser	Leu	Asp	Leu	Phe	Tyr	Val	Gly	Tyr	Arg	
				165					170					175		
Asp	Lys	Glu	Ser	Ile	Phe	Lys	Val	Tyr	Lys	Asp	Lys	Ser	Phe	Asn	Ile	
			180					185					190			

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 Glu Lys Ala Lys Thr Glu Asn Lys Glu Ser His Asp Gln Phe Leu Gln
 35 40 45
 His Thr Ile Leu Phe Lys Gly Phe Phe Thr Asn His Ser Trp Tyr Asn
 50 55 60
 Asp Leu Leu Val Asp Phe Asp Ser Lys Asp Ile Val Asp Lys Tyr Lys
 65 70 75 80
 Gly Lys Lys Val Asp Leu Tyr Gly Ala Tyr Tyr Gly Tyr Gln Cys Ala
 85 90 95
 Gly Gly Thr Pro Asn Lys Thr Ala Cys Met Tyr Gly Val Thr Leu His
 100 105 110
 Asp Asn Asn Arg Leu Thr Glu Glu Lys Lys Val Pro Ile Asn Leu Trp
 115 120 125
 Leu Asp Lys Gln Asn Thr Val Pro Leu Glu Thr Val Lys Thr Asn Lys
 130 135 140
 Lys Asn Val Thr Val Gln Glu Leu Asp Leu Gln Ala Arg Tyr Leu Gln
 145 150 155 160
 Glu Lys Tyr Asn Leu Asn Ser Asp Val Phe Asp Gly Lys Val Gln Arg
 165 170 175
 Gly Leu Ile Val Phe His Thr Ser Thr Glu Pro Ser Val Asn Tyr Asp
 180 185 190
 Leu Phe Gly Ala Gln Gly Gln Asn Ser Asn Thr Leu Leu Arg Ile Tyr
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